

A Survey on the Leafy Vegetables of Kondagaon area of Bastar Chhattisgarh

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ABSTRACT

During present investigation a detailed survey of leafy vegetables used by tribal population of various areas of Kondagaon district of Bastar Chhattisgarh have been made. In general, it is assumed that about 36 species of plants are used as the source of leafy vegetables in the state of Chhattisgarh. There are 64 ethno-medicinal leafy plants recorded. Which were distributed over various life forms. Among these, 6 were tree species, 2 were shrubs, 46 were herbs and 10 were climber species but it was amazing to note during the survey work that almost 64 plant species were found to be used in different areas like, Farasgaon, Makadi, Keshkal, Bade-Rajpur, Dongriguda, Dhanawra, Baskot, Bhandarshivini, Kanera etc. of Kondagaon district. Important of these plants were *Cordia subcordata* (Bodi), *Polygonum plebeium* (Chanti), *Hibiscus sabdariffa* (Jhirra), *Borreria hispida* (Gundru), *Asteracantha longifolia* (Mokhla), *Celastrus paniculatus* (Peng), *Celosia argentea* (Siliyari), *Ficus religiosa* (Pikadi), *Sphaeranthus indicus* (Gorakhmudi), *Cleome viscosa* (Balakut), *Achyranthes aspera* (Chirchida), *Commelina benghalensis* (Kenna), *Amaranthus spinosus* (Kanta) etc. Many of the vegetables also serve as the source of herbal remedies for the local people in the treatment of arthirities, jaundice, cold and cough, fever, headache, bronchial asthma, ulcers, skin troubles etc.

Keywords: Leafy vegetables, roughage, ethnomedicinal, sociobiology, nutrients.

Introduction

Since ancient time, wild plants have played very important role in fulfilling the nutrition requirement of mankind all over the world. Leafy vegetables, also called leafy, greens, salad greens, pot herbs, vegetable greens, or simply greens, are plant leaves eaten as a vegetable, sometimes accompanied by tender petioles and shoots. Although they come from a very wide variety of wild leafy plants, most share a great deal with other leafy vegetables in nutrition and cooking method. In India, the leaves of a large number of wild and cultivated plants are used as vegetables (Shingade *et al.*, 1995; Rathore, 2009; Vishwakarma and Dubey, 2011; kumar, 2013). They have a very high protective food value and are very easy to grow. The present study embodies the identification and documentation of leafy vegetable that are used by tribal and local population

living in remote areas. Many more leafy vegetables that are eaten by the tribal and local people of Chhattisgarh have been described by many workers.

In Chhattisgarh, the life and economy of the tribal and local people are intimately connected with the natural vegetation. Leafy vegetables play a major role in the nutritional requirement of the tribal and local population in remote parts of the Chhattisgarh. The use of leafy vegetables as food has been formed an integral part of the culture and tradition of many indigenous communities of the world. It constitutes an essential component in the diet and food security of many tribal and local communities particularly people living around the forest fringe (Kala,2009; Chauhan *et al*,2014; Haile and Tesfu,2014).

In this district ethno-medicinal leafy plants and their products are used during different types of diseases among tribal groups. The tribal communities substantially depend on their surrounding areas for food and medicine use. Wild edible leafy vegetables are valuable sources of nutrients especially in rural areas. Leafy vegetables are known as excellent sources of natural antioxidant. Many people are not aware of the nutritional value of wild edible leafy vegetables (Ogle *et al*,2001; Ogle,2001). This traditionally occupied knowledge have been transmitted from time immemorial, but new generation is not interested to know about aboriginal uses of medicinal plants. Due to this lack of interest of modern generation of both tribals and non tribals, there is a danger of disappearance of the knowledge gained in last thousands of years. There is an urgent need to protect this knowledge and conservation of such ethnomedicinally important plants (Jain,1963; Kulkarni *et al*,2003; Jain and Tiwari,2012).

Materials and Methods:-

Study Sites: The study was conducted in different villages of Bastar districts i.e., Kondagaon, Farasgaon, Makadi, Bade-Rajpur, Keshkal, Dhanawra, Dongriguda, Banskot, Bhandarshivini, Badedongar, Lanjoda and Baniyagao. Kondagaon is newly formed District of Chhattisgarh state. It is situated in south eastern part of the State in Central India. It falls in survey of India, between 19⁰ 11' to 20⁰ 13' North latitude and 81⁰ 17' to 82⁰ 04' East longitudes. Kondagaon District has an area of 7768.907 square kilometers.

Aim of the Survey: Survey research is a commonly used methods of collecting informations about a local tribal peoples of interest. The main aim of the survey was to gather information about the different wild edible leafy vegetables plant species which are used by the local tribal people. Survey for identification and distribution of leafy vegetables plant species in Kondagaon. The leafy socio-economic development and ethnobotanical survey for conservation practices of leafy vegetables. To study the traditional conservation, knowledge and awareness of different nutrients in wild leafy plants of tribal people (Grivetti and Ogle,2000).

Questionnaire and Data Collections: The study is carried out in winter season October to February occurred in the year 2018 to 2019 in 12 different villages and weekly village markets of Kondagaon district. Interviews were organised with many local tribal people for gathering more information including both from male and female. Many green leafy vegetables were collected, photographed, identified, documented and leafy plant specimens were prepared for the herbarium (Shukla *et al*,2001).

Target Groups: To gathered specially target of groups in my research works like; field survey, local tribal people, different families of leafy plant, green leafy vegetables and ethnomedicinal importance. The ethnomedicinal data were gathered from the tribal medicine men, Baigas i.e Vaidyas, who practices ethnomedicine among their communities since time immemorial. In my field survey, plants of different families of green leafy vegetable were collected. The vegetables also serve as the source of herbal remedies for the local people in the treatment of arthirities, jaundice, cold and cough, fever, headache, bronchial asthma, ulcers, skin troubles etc (Roy and Shukla ,1992; Ogle *et al*,2001; Ogle *et al*,2003; Mahesh *et al*,2012).

Results and Discussions: The present investigations have recorded 64 leafy vegetable plants used by tribal communities in Kondagaon district. The total documented leafy plants were distributed over 35 Families and have occupied various life forms, out of them 6 were tree species, 2 were shrub species, 46 were herb species and 10 were climber species. The population of herb species was maximum in this area. The local name, botanical name, family, habit, plant parts and ethnomedicinal uses of plant. The plants surveyed during the present investigation have been given below in table.

Table: List of wild edible leafy plants are as given below:-

S. No.	BOTANICAL NAME	LOCAL NAME	FAMILY	HABIT	ETHNO-BOTANICAL IMPORT-ANT PLANT PARTS	ETHNO-MEDICINAL USES
1.	<i>Achyranthes aspera</i> L.	Chirchida Bhaji	Amaranthaceae	Herb	Leaves	Snakebite, stomach pain, fever and cough
2.	<i>Allium cepa</i> L.	Pyaj Bhaji	Liliaceae	Herb	Leaves & Bulb	Sunstroke, vomiting
3.	<i>Amaranthus dubius</i> Mart.	Khedha Bhaji	Amaranthaceae	Herb	Leaves & stem	Lactating mothers, haemorrhage, anaemia, kidney problems, fever
4	<i>Amaranthus hybridus</i> L.	Ropa Bhaji	Amaranthaceae	Herb	Leaves	Intestinal bleeding, diarrhea, excess menstruation.
5.	<i>Amaranthus spinosus</i> L.	Kanta Bhaji	Amaranthaceae	Herb	Leaves	scorpion bite and

						snake bite
6.	<i>Amaranthus tricolour</i> L.	Lal Bhaji	Amaranthaceae	Herb	Leaves & Stem	Astringent and diuretic, intestinal bleeding, diarrhea, excess menstruation.
7.	<i>Amaranthus viridis</i> L.	Chaulai Bhaji	Amaranthaceae	Herb	Leaves, roots, seeds & Stem	Diuretic, heart troubles, gonorrhoea, eye infections
8.	<i>Asteracantha longifolia</i> L.	Mokhla Bhaji	Acanthaceae	Herb	Leaves	Diabetes, liver problems, blood diseases, tonic
9.	<i>Basella alba</i> L.	Poi Bhaji	Basellaceae	Climber	Leaves & Woods	Gonorrhoea, intestinal disorders
10.	<i>Basella rubra</i> L.	Red Poi Bhaji	Basellaceae	Climber	Leaves, Woods	Dysentery, leprosy, swelling
11.	<i>Bauhinia purpurea</i> L.	Koliaari Bhaji	Caesalpinaceae	Tree	Leaves, Stem, Flower & Bark	Piles, diabetes, skin diseases, asthma, dysentery, diarrhea
12.	<i>Boerhavia diffusa</i> L.	Punarnava Bhaji	Nyctaginaceae	Herb	Leaves	Asthma, jaundice, anaemia, snake venom, liver diuretic, dysentery
13.	<i>Borreria hispida</i> K. Schum.	Gundru/ Nuniya/ Patur Bhaji	Rubiaceae	Herb	Leaves	Headache, wounds, haemorrhoids and sores, toothache, diarrhea and dysentery
14.	<i>Brassica campestris</i> L.	Sarso Bhaji	Brassicaceae	Herb	Leaves & Seeds	Fever, weakness, menstrual disorder, internal pains
15.	<i>Brassica oleracea botrytis</i> L.	Gobhi Bhaji	Brassicaceae	Herb	Leaves & Inflorescence	Cleansing qualities, glaucoma and pneumonia
16.	<i>Brassica oleracea</i> var. capitata L.	Bandhgobhi Bhaji	Brassicaceae	Herb	Leaves	Cleansing qualities, glaucoma, pneumonia, gastritis, rheumatism, ulcer, bone weakness, anemia diseases.
17.	<i>Brassica oleracea</i> var. caularpa L.	Ganthgobhi Bhaji	Brassicaceae	Herb	Leaves & Stem	Cardiotonic, antelmintic, diuretic, stomachic
18.	<i>Cantella asiatica</i> L.	Bramhi Bhaji	Apiaceae	Herb	Leaves &	Decoction of

	Pennell				Flowers	whole plant is used as tonic
19.	<i>Carthamus tinctorius</i> L.	Kera/Burre Bhaji	Asteraceae	Herb	Leaves, Flowers & Seeds	Heart diseases, lower cholesterol level, menstrual pains, measles, fevers and skin problems, rheumatism, tumours
20.	<i>Cassia tora</i> L.	Charota Bhaji	Caesalpiaceae	Herb	Leaves, roots & Seeds	Skin diseases, leprosy, arthritis, ringworm, itching, snakebites
21.	<i>Celastrus paniculatus</i> Willd.	Peng/Malkangini Bhaji	Celastraceae	Climber	Leaves & Seeds	Leprosy, skin diseases, paralysis, asthma, fever, sharpening the memory
22.	<i>Celosia argentea</i> L.	Siliyari Bhaji	Amaranthaceae	Herb	Leaves, Flowers, Seeds & Roots	Snakebites, uterine bleeding, dysentery, diarrhea, hypertension, bloodshot eyes, skin irritation, eczema
23.	<i>Chenopodium album</i> L.	Bathua Bhaji	Chenopodiaceae	Herb	Leaves & Seeds	Sunstroke, skin diseases, dysentery, urinary problems
24.	<i>Corchorus olitorius</i> L.	Safed Chech Bhaji	Tiliaceae	Herb	Leaves	Hairfall and also to kill lice
25.	<i>Cicer arietinum</i> L.	Chana Bhaji	Fabaceae	Herb	Leaves, Seeds, stem, roots	Dyspepsia, constipation and snakebite
26.	<i>Cleome viscosa</i> L.	Balakut/Hurhur Bhaji	Cleomaceae	Herb	Leaves	Dysentery, wounds, ulcers, herpes, earaches, diarrhea, dysentery, stomach pain, piles
27.	<i>Coccinia grandis</i> L.	Kundru Bhaji	Cucurbitaceae	Climber	Leaves, Fruits	High fever, diabetes, jaundice, tuberculosis, skin

						diseases
28.	<i>Cocculus hirsutus</i> L.	Urla Bhaji	Menispermaceae	Climber	Leaves, Roots & Stem	Stomach pain, female sterility, night blindness, skin infections, eczema, diuretic, tonic, fever
29.	<i>Colocasia antiquarum</i> Schott.	Kochai Bhaji	Araceae	Herb	Leaves	Promote menstruation, stomach problems, cysts, knee pain
30.	<i>Colocasia esculenta</i> L. Schott	Doba/Jangal Kochai Bhaji	Araceae	Herb	Leaves, Corms & Petiole	Stomatitis, hemorrhoids, cancer, weakness
31.	<i>Commelina benghalensis</i> L.	Kenna Bhaji	Commelinaceae	Herb	Leaves	Infertility in womens, eye ailments, sore throat and burns, diarrhea, stomach pain
32.	<i>Corchorus capsularis</i> L.	Budkari Bhaji	Malvaceae	Herb	Leaves, seeds & roots	Stomachache, dysentery, fevers, dyspepsia and liver disorders
33.	<i>Corchorus trilocularis</i> L.	Gudhkal/Lal Chech Bhaji	Tiliaceae	Herb	Leaves, seeds	The leaves are used as a plaster to reduce swellings
34.	<i>Cordia myxa</i> Roxb.	Bohar Bhaji	Boraginaceae	Shrub tree	Leaves, Bark, Fruits & Seeds	Stomach aches, coughs and chest pain. sleeping- sickness, headaches, ulcers, fever, skin diseases, broken bones, to improve healing
35.	<i>Cordia subcordata</i> Lam.	Bodi Bhaji	Boraginaceae	Climber	Leaves	The leaves can be used as fodder for livestock, to control blood pressure
36.	<i>Costus speciosus</i> Koenig SM.	Basey/Kew bhaji	Costaceae	Herb	Leaves, Shoots, Rhizome & Fruits	Head-ache, eye and ear infections, fever, dysentery, cough, snake bite, jaundice, arthritis,

						burning sensation, leprosy, skin diseases, asthma, bronchitis, nose pain, vomiting
37.	<i>Cucurbita maxima</i> Duch.	Kumhda Bhaji	Cucurbitaceae	Climber	Leaves & Fruits	Anti-diabetic, anti-oxidant, anti-inflammatory, digestive problems
38.	<i>Dolicus lablab</i> L.	Sem Bhaji	Papilionaceae	Herb	Leaves & Pod	Anti-helminthic, cough, skin diseases
39.	<i>Ficus mollis</i> L.	Gasti Bhaji	Moraceae	Tree	Leaves	Cuts and wounds, blood purification and healthy body
40.	<i>Ficus religiosa</i> L.	Pikadi/Pipal	Urticaceae	Tree	Leaves, Bark, Shoot & Fruits	To treat throat infection
41.	<i>Hibiscus cannabinus</i> L.	Patawa Bhaji	Malvaceae	Shrub	Leaves	Acidity, coughs, dysentery, blood and throat disorders, stomach pain, anaemia
42.	<i>Hibiscus sabdariffa</i> L.	Jhirra/ Khatta Bhaji	Malvaceae	Shrub	Leaves	Dysentery, diarrhea, liver diseases, hypertention, skin diseases, stomach pain, digestions, high blood pressure
43.	<i>Ipomoea aquatic</i> Frosk.	Kalmi/ Karmota Bhaji	Convolvulaceae	Herb	Leaves	Coughs, fever, tonic, antidiabetic, jaundice, liver
44.	<i>Ipomoea batatas</i> Lam.	Kanda Bhaji	Convolvulaceae	Herb	Leaves & Tubers	Asthma, burns, fever, stomach, distress and tumours, antidiabetic, antioxidant
45.	<i>Lathyrus sativus</i> L.	Tiwara Bhaji	Fabaceae	Herb	Leaves, Stem & Seeds	Prolonged periods, paralysis
46.	<i>Leucas cephalotes</i> Spreng.	Gumee Bhaji	Lamiaceae	Herb	Leaves, Flower & Stem	Fever, malarial fever, headache, urinary complaints, snake bites, wounds and

						sores, skin diseases, cold and cough, asthma
47.	<i>Marsilia vestita</i> Hook & Grev.	Chunchunia Bhaji	Marsileaceae	Herb	Leaves	Cold, malaria, swelling, relieving pain, stop bleeding, skin problem, diabetes
48.	<i>Medicago denticulata</i> Willd.	Chanauri Bhaji	Fabaceae	Herb	Leaves	Helpful in lowering cholesterol levels, arthritis, kidney problems, cardiogenic, fever, anti-cancer
49.	<i>Momordica charantia</i> L.	Karela Bhaji	Cucurbitaceae	Climber	Leaves, Fruits, Roots & Seeds	To reduce blood sugar level, diabetes
50.	<i>Momordica dioica</i> W.Roxb. ex Will.	Kheksi Bhaji	Cucurbitaceae	Climber	Leaves, roots & tubers	Diarrhoea, diabetes, asthma, headache, piles, fever
51.	<i>Moringa pterygosperma</i> Lam.	Munga Bhaji	Moringaceae	Tree	Leaves, Roots, Root bark, Flowers, Fruits & Seeds	Heart disease, liver, spleen, dental disorders
52.	<i>Oxalis corniculata</i> L.	Awali Bhaji	Oxalidaceae	Herb	Leaves, Stem	Insect bites, burns, skin eruptions, urinary infection, fever, pimples, dysentery, diarrhoea
53.	<i>Phaceolus radiatus</i> L.	Urad Bhaji	Papilionaceae	Climber	Leaves & Seeds	Paralysis, rheumatism, coughs, fever, liver ailments
54.	<i>Phaseolus vulgaris</i> L.	Barbatti Bhaji	Papilionaceae	Herb	Leaves, Pod & Seeds	Diuretic especially kidney and heart ailments, diarrhea.
55.	<i>Pilularia globulifera</i> L.	Chiyur Bhaji	Marsileaceae	Herb	Leaves	To treat health purpose and to give more

						nutritions and blood purification.
56.	<i>Polygonum plebeium</i> R.Br.	Chanti Bhaji	Polygonaceae	Herb	Leaves, seeds, roots	To control blood pressure
57.	<i>Portulaca oleracea</i> L.	Non/Dal/Ghol Bhaji	Portulacaceae	Herb	Leaves	Diuretic, cough and sores, stomach pain, headaches, skin burn, skin diseases, earaches
58.	<i>Raphanus sativus</i> L.	Mooli Bhaji	Brassicaceae	Herb	Leaves, Seeds & Roots	Asthma, and chest pain, stomach pain, indigestion, diarrhea, bronchitis
59.	<i>Semecarpus anacardium</i> L.f.	Bhelva Bhaji	Anacardiaceae	Tree	Leaves & Thalamus	Fruits, leaves are used for anti-cancer purpose
60.	<i>Solanum tuberosum</i> L.	Aloo Bhaji	Solanaceae	Herb	Leaves & Tubers	Burns, corns, cough, cystitis, scurvy, tumors, diuretic
61.	<i>Sphaeranthus indicus</i> L.	Gorakhmudi Bhaji	Asteraceae	Herb	Leaves	Earache, toothache, jaundice, piles, vomiting and uterus pain
62.	<i>Spinacea oleracea</i> L.	Palak Bhaji	Chenopodiaceae	Herb	Leaves	Diabetes, arthritis, migraine, headaches, asthma, cancer, eye and kidney diseases
63.	<i>Trigonella foenum graceum</i> L.	Methi Bhaji	Fabaceae	Herb	Leaves & Seeds	Rheumatism and diabetes
64.	<i>Vigna radiata</i> (L.)R. Wilczek	Jhudga Bhaji	Fabaceae	Herb	Leaves, Seeds	Paralysis, rheumatism, coughs, fever and liver ailments

Photographs



(a) *Cucurbita maxima*



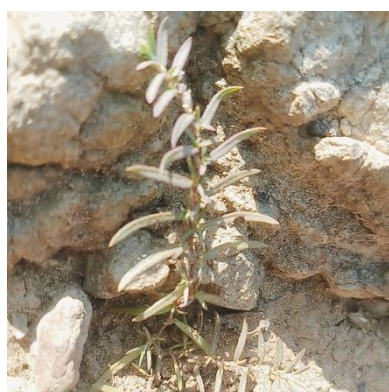
(b) *Oxalis corniculata*



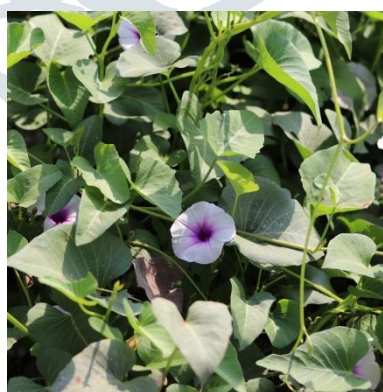
(c) *Cleome viscosa*



(d) *Cordia myxa*



(e) *Polygonum plebeium*



(f) *Ipomoea aquatica*

(g) *Costus speciosus*(h) *Hibiscus sabdariffa*(i) *Colocasia antiquarum*(j) *Bauhinia purpurea*(k) *Hibiscus cannabinus*(l) *Dolichus lablab*

Conclusion

Kondagaon district is endowed with rich floristic diversity with numerous ethnomedicinal plants of economic significance. Now a days it has been realized that the ethnomedicinal studies of different tribal areas were going to play a vital role for future. These leafy vegetable plants from the backbone of medicines. The local ethnic communities like Gond, Baiga, Korku, Muria, Maria and Oraon, in order to earn good revenue for their livelihood, collect these ethnomedicinal leafy plants in huge quantities and sell them in the local markets at cheaper rates to vendors, thereby threatening the diversity of these ethnomedicinal leafy plants in nature and pushing many species to fall in red data categories in near future. The information

generated from the present study regarding the medicinal leafy plants used by the local tribes may be helpful in conservation and wide cultivation of these plants in coming days. The importance of these economically important leafy plants could be rejuvenated for the benefit of our future generations and also need to improve health care condition.

The present work will be very useful in documenting the area and conserving the vital knowledge of tribals regarding the use of plants.

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